

Math 1 (Level 1) (PACES 1001–1012)

The student:

- Reviews and learns numbers in symbol, name, and **number words** from zero to ten.
- **Counts** and **writes** from zero to one hundred.
- Solves simple **addition**, **subtraction**, and **word problems**.
- Learns to **tell time**.
- Learns the concept of **money** and counting coins with pennies, nickels, and dimes.
- Reviews **length** comparison: longer and shorter.
- Learns liquid **measurements**: cups, pints, and quarts.
- Reviews recognition of **basic shapes**.
- Reviews **order of numbers**: before, between, after; and contrasting numbers—same, not the same, more than, and less than.

Math 2 (Level 2) (PACES 1013–1024)

The student:

- Continues learning to **add** and **subtract**, to carry and borrow 2- and 3-digit numbers, solves word problems, and works addition and subtraction facts vertically and horizontally.
- Completes **timed drills** and **oral drills**.
- Learns to relate **multiplication** to addition.
- Counts and writes by twos, fives, and tens; counts and writes from 1–500; writes numbers in **place values** of 1s, 10s, and 100s; and writes numbers on a calendar.
- Recognizes and writes **number words**.
- Learns to identify **odd** and **even** numbers.
- Reviews **telling time**.
- Reviews numbers that are **greater than** and **less than**.
- Learns to relate **cent signs** to pennies, nickels, dimes, and quarters.
- Learns to **measure** objects in inches and centimeters, and compares equivalents for cups to pint, pints to quart, and quarts to gallon.
- Recognizes and constructs **geometric shapes**.

Math 3 (Level 3) (PACES 1025–1036)

The student:

- **Adds** 3-digit to 3-digit numbers, **subtracts** 3-digit from 3-digit numbers, and solves word problems with carrying and borrowing.
- Learns **multiplication facts** 1–9 with timed drills and oral drills.
- Reviews numbers in **place values** of 1s, 10s, and 100s; writes numbers to count on a number line; reviews and writes on charts; and learns to use picture tables to determine height.
- Reviews **telling time** and learns half-hour, quarter-hour, and 5-minute increments.
- Learns **Roman numerals**.
- Reviews **measurements** of weight, liquid, and length; converts inches to feet, feet to yards; reads scales in pounds; and learns the abbreviations in., ft., and yd.
- Writes **ordinals** first through tenth.
- Learns to **divide** objects or **sets** into halves.

Math Builder, a computerized mathematic flashcard program, is also available for additional reinforcement and drill.

Math 4 (Level 4) (PACES 1037–1048)

The student:

- Learns **additional multiplication facts**; 10 and 11 times tables, and simple division skills; identifies and uses relationships between operations, such as division as the inverse of multiplication, to solve problems.
- Matches word sentences with number sentences and reviews **number words** and symbols.
- **Rounds numbers** on a number line to the nearest 5 and 10.

- Reviews and learns **Roman numerals** 1–50 and word problems converting to numerals.
- Learns to borrow and **subtract** 3-digits minus 3-digits, checks by addition, and borrows and subtracts from 10s, 100s, and 1000s.
- Learns to use the **terms** addend, sum, minuend, subtrahend, difference, multiplier, multiplicand, and product to match correct numbers in problems.
- Learns **fractions** through shaded parts of a circle, learns equivalency in fractions, and adds and subtracts like fractions.
- Learns to **add** and carry to 10s, 100s, and 1000s—4-digits and 4-digits.
- Reviews and demonstrates understanding of basic **money** concepts and skills.
- Reviews **converting** inches to feet, feet to yards, and inches to yards; reading a scale in pounds; and converting cups to pints, pints to quarts, and quarts to gallons.

Math 5 (Level 5) (PACES 1049–1060)

The student:

- Defines and identifies new **math terms**: quotient, dividend, numerator, and denominator.
- Uses addition, subtraction, division, and multiplication with **fractions**; identifies proper and improper fractions; and reduces fractions to lowest terms.
- **Factors** numbers from least to greatest, and finds the Greatest Common Factor (**GCF**) and the Least Common Denominator (**LCD**) of fractions.
- Recognizes the **place value** of each digit in numbers up to thousands.
- Learns to represent and compare whole numbers and **decimals**.
- Learns the **commutative properties** of addition and multiplication and **estimation**.
- Compares numbers, sentences, words, decimals, and fractions using **>** and **<** **symbols**.
- Defines and identifies **prime numbers**.
- References **charts, pictographs, and line graphs**.
- Writes **Roman numerals** 1–399.
- Learns basic **geometry**—points, lines, rays, and angles; identifies geometric shapes; identifies similar and congruent figures; and finds the volume, perimeter, and area of figures.
- Learns about **probabilities** and **ratios**.
- Processes **simple unit conversions** such as centimeters to meters within a system of measurement.

Math 6 (Level 6) (PACES 1061–1072)

The student:

- Learns the **properties of addition and multiplication**—commutative, associative, identity, and zero.
- Works with **exponents** and is introduced to **expanded notation using exponents**.
- **Rounds and estimates** large numbers and works **mental estimation** problems.
- Learns **factoring rules (divisibility rules)**; identifies **prime numbers** and **composite numbers**.
- Reviews **fractions** and fraction terms; adds, subtracts, multiplies, and divides fractions; changes **fractions to decimals** using long division; and converts **fractions to percents**.
- Reviews **decimals**; adds, subtracts, multiplies, and divides decimals; defines **repeating** and **terminating** decimals; and changes **decimals to percents**.
- Relates **percents** and decimals to fractions, learns **common percents**, changes **percents to decimals**, and finds **percent of a number**.
- Is introduced to **integers**.
- Learns **order of operation**.
- Learns the terms **equations** and **inequalities** when comparing number sentences (**<**, **>**, **=**).
- Defines a **variable** and **solves equations** (one variable) using inverse operations.
- Works with **ratios** and **proportions**, and uses proportions to solve problems.
- Finds the **probability** of an event, and expresses probability as a ratio.
- Uses critical thinking skills to **solve word problems**.
- Defines and interprets circle, line, bar, and double-line **graphs**.
- Builds **geometric** knowledge; measures angles; finds the perimeter, area, and volume; and defines the parts of a circle.
- Rounds **money to find estimated costs** and solves money problems.
- Compares **English** and **metric measurements**, and carries out conversions.

Math 7 (Level 7) (PACES 1073–1084)

The student:

- Reads, writes, and works with **whole** and **mixed numbers**, integers, and proper and improper fractions.
- Learns the proper **mathematical terminology**—dividend, multiplicand, product, simplify, minuend, quotient, numerator, and denominator; changes fractions and decimals to percents; finds the number when a percent is known; finds the mean, mode, median, range, and rank; and interprets graphs, stem and leaf plots, and box and whisker plots.
- Is introduced to **business** and **consumer arithmetic**—profit and loss, commission, discounts, bills and receipts, and invoices with discounts; ratios, proportions, and percents.
- Reviews **geometric concepts** and finds perimeter, circumference, and surface area.
- Learns Biblical principles of **finance**, budgeting, saving, investing, and bank services.
- Reviews **English** and **metric** units of length, volume, weight, and temperature.
- Reviews basic **geometry** concepts and symbols and uses a protractor and compass to find perimeter and area of shapes and solids.
- Is introduced to **equations**—variable, sets, and set notation; vocabulary; symbols; and word problems.

Math 8 (Level 8) (PACES 1085–1096)

The student:

- Reviews **basic number theory** and **mathematical terms** and **operations** including integers, fractions, decimals, and percents.
- Gains mastery of **exponents** and learns to simplify **radicals** and estimate the value of numbers that are not perfect squares.
- Solves one, two, and multistep **equations** and **inequalities**, including equations containing fractions and exponents.
- Expands his knowledge of **ratios** and **proportions** and uses them to solve application and word problems in similarity, scaling, and unit costs.
- Uses the **Pythagorean Theorem**.
- Uses measures of central tendency to analyze and interpret **data** and **graphs**.
- Expresses **probability** as ratios, decimals, and percents.
- Finds the number of **permutations** and **combinations** using factorial notation and combinations using Pascal's Triangle.
- Reviews basic **geometric concepts, symbols, shapes, and constructions**, including translations, reflections, and rotations on a coordinate plane.
- Converts between the **English** and **metric** systems of measurement and **Fahrenheit, Celsius, and Kelvin** temperature scales.
- Expands his knowledge of **business** and **consumer mathematics**—sales, profit and loss, simple and compound interest, interest payments on loans, property tax, and life and auto insurance.

Algebra I (Level 9) (PACES 1097–1108)

Basic algebraic concepts (definitions, signs, and expressions) are introduced in a carefully structured way to make the learning material understandable. This curriculum includes principles for logically solving, transposing, and canceling algebraic equations.

The student works with:

- Monomial and polynomial expressions.
- Algebraic addition, subtraction, multiplication, and division.
- Complex fractions: reducing, simplifying, and solving word problems.
- Algebraic graphs—linear equations, consistent, inconsistent, and dependent in word problems.
- Quadratic equations, factoring, positive and negative numbers, averages, percents, interest, ratios, and proportions, and translating word problems to algebraic equations.
- The Pythagorean Theorem.

Geometry (Level 10) (PACES 1109–1120)

Prerequisite: Algebra I

This course expands the deductive reasoning powers of the student as he reviews previously learned material and is introduced to new concepts.

The student learns:

- To reason logically and systematically.
- Properties and theorems and how to use them for solving problems—converse and construction, parallelograms, tangency, exterior angle; Hinge, Pythagorean, and regular polygon theorems.
- Types of shapes, angles, arcs, and chords, and learns to find the circumference and area.
- Tangents, secants—angles formed and intersecting within a circle.

Algebra II (Level 11) (PACES 1121–1132)

Prerequisite: Algebra I

This advanced study in algebra includes parabolas, hyperbolas, permutations, logarithms, and matrices; operations with radicals and fractions; and solving equations. The approach is practical, helping the student use his reasoning abilities.

The student learns to operate with:

- Real number axioms and applications.
- Radicals and complex numbers.
- Fractions and operations, equations and decimals.
- Equations—linear and graphs, quadratic solutions, relations and polynomial functions.
- Arithmetic and geometric sequences and series, and sentences with one variable.
- Multiplication of polynomials, factoring monomials, squares, groups, and open sentences.
- Computations, exponential functions, logarithms, and antilogarithms; and permutations, combinations, binomial expansions, and probability.
- Matrices and their properties, determinants of equations, and systems of equations.

Trigonometry (Level 12) (PACES 1133–1138) 1/2 Credit

Prerequisite: Algebra I, Geometry, and Algebra II

Trigonometry is a six-PACE, interactive learning experience for the student. Through the use of a graphing calculator, the student is able to solve realistic problems about our universe.

The student learns to:

- Find unknown measurements involving triangles.
- Determine the values of the trigonometric functions for any angle.
- Establish and use trigonometric identities.
- Graph trigonometric functions with and without a graphing calculator.
- Use the inverse trigonometry functions to find angle measures.
- Solve equations involving the trigonometric functions.
- Graph functions in the polar plane.
- Perform operations with complex numbers.
- Recognize how trigonometry models our world.

This course reflects the use of a TI-83 Plus or TI-84 Plus graphing calculator.